Publication No. MB 3058-34
5/1994

MODIFICATION INSTRUCTIONS

for the

KODAK MULTILOADER 300

Service Code 3058

Modification No. 34

TYPE 2

PURPOSE:

To replace the FILM POCKET CLUTCH SPRINGS

SERIAL NUMBERS:	up to SN 2000
INSTALLATION TIME:	Approx. 3.0 hours
PARTS REQUIREMENTS:	Modification Kit 9225790

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PARTS LIST

PART-NO.	DESCRIPTION	QUANTITY
9225790	**MOD KIT 34**	

The KIT contains:

4281551	SCREW M3x16	1
4281631	SCREW M5x25	1
4853236	NUT M4	1
4853256	LOCK NUT M4 with blue insert	3
9215302	CONNECTING ROD	1
9219841	SPRING HOOK 1	1
9219851	SPRING HOOK 2	1
9219831	REJECTER SPRING	1
9225780	CLUTCH SPRING	1
9215803	CLUTCH DISK 1	1
9215793	CLUTCH DISK 2	1
9219901	RING	1

INTRODUCTION

With the existing clutch design, it is very time consuming to replace a broken spring. With the new clutch design it will take only a few minutes to replace a broken spring. In addition the replacement of a spring in the new clutch assembly, does not require any adjustments.

CAUTION

Do not change the routing of the cables in the FILM POCKET AREA. If you took off a cable, install it as it was.

INSTALLATION OF THE NEW FILM POCKET CLUTCH ASSEMBLY.

NOTE

AFTER THE NEW FILM POCKET CLUTCH ASSEMBLY IS INSTALLED, DO ALL THE FILM POCKET ADJUSTMENTS.

1. Switch off the ML300.
2. Take off the PANELS.
3. Rotate out the FILM CHUTE.

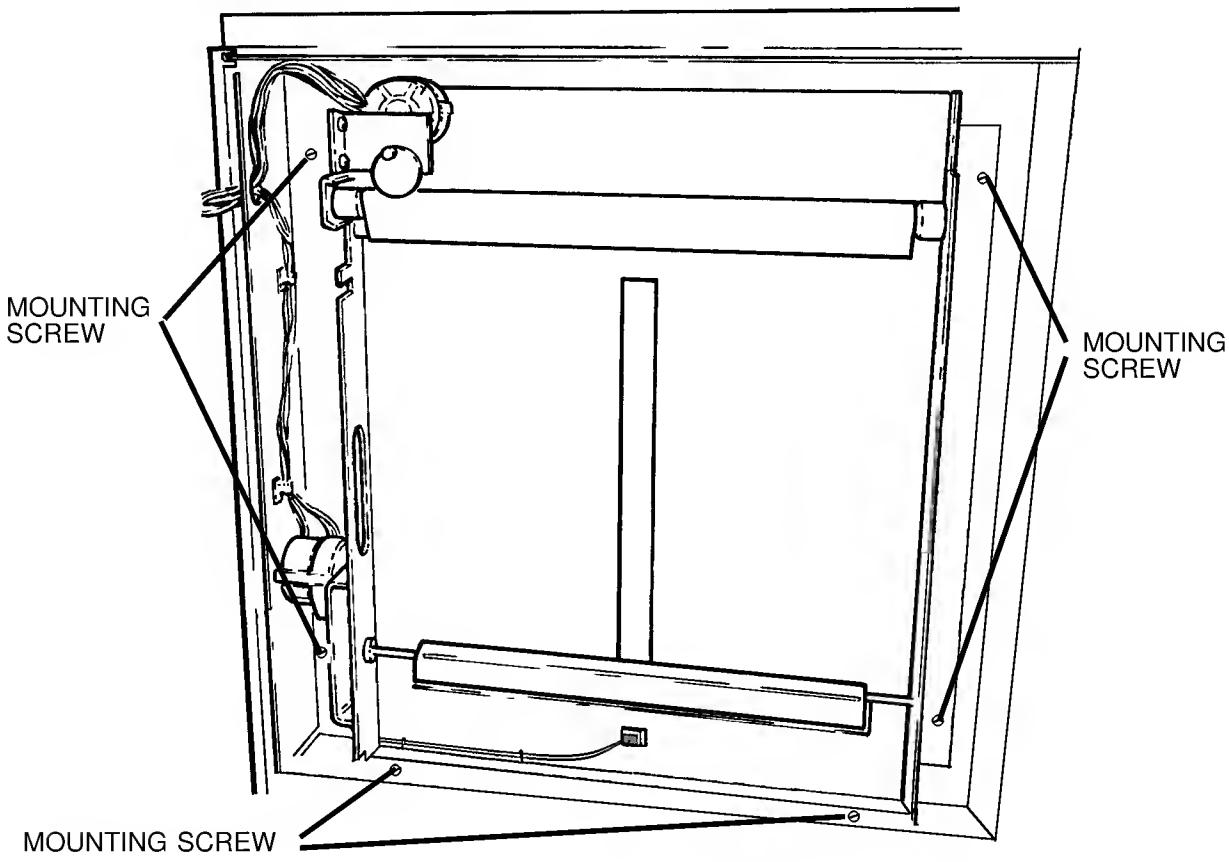

figure 1

4. Take out BOARD A5 together with the MOUNTING BRACKET. See figure 2.
5. Take out the DETENT ASSEMBLY. See figure 2.

NOTE

Starting with SN 1422 a DOUBLE DETENT is used. See the figure 3.

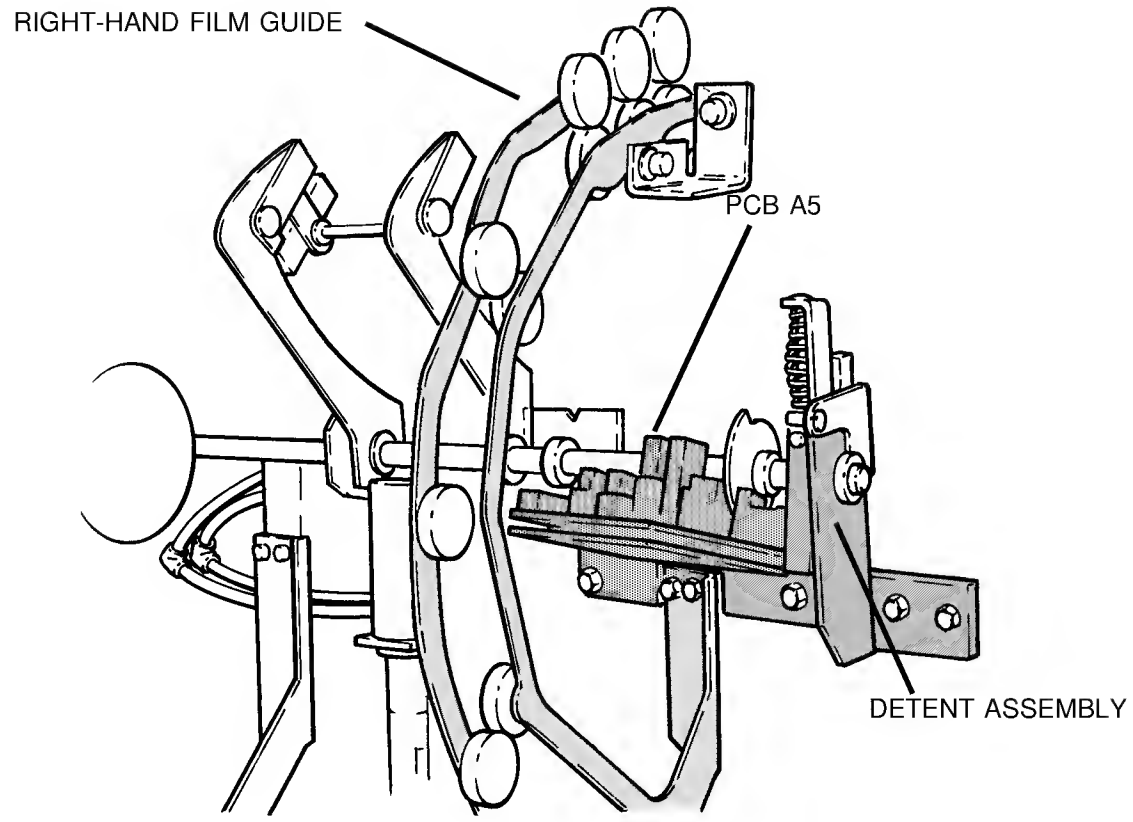

figure 2

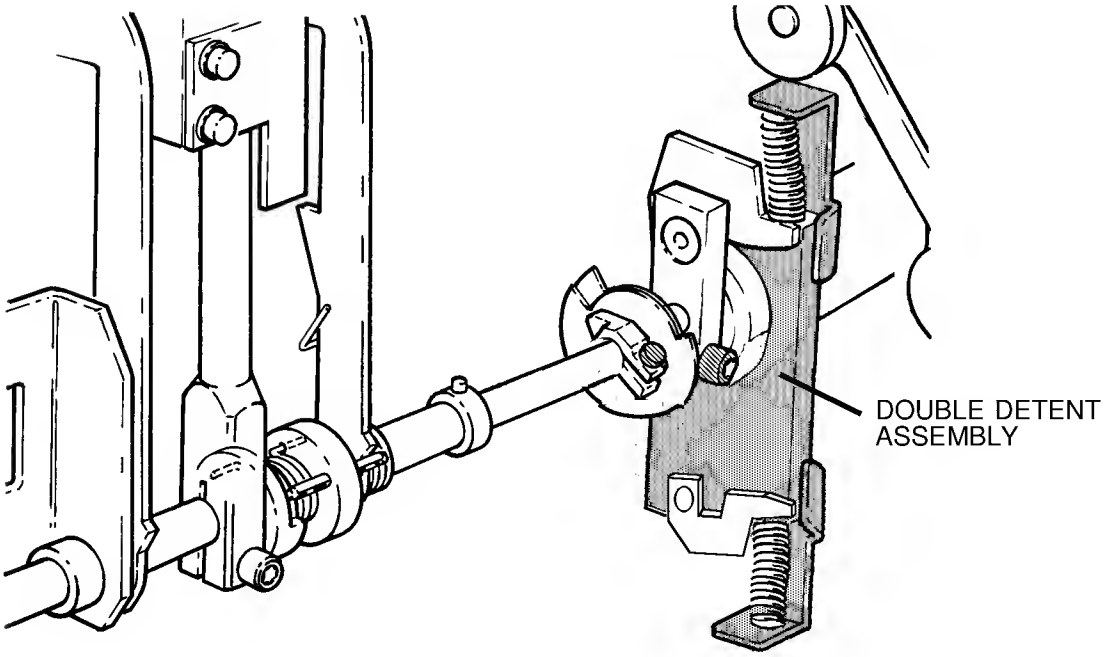

figure 3

6. Take out the right-hand FILM GUIDE and the TIMING DISKS.

NOTE

Do not mix up the left-hand and right-hand TIMING DISK

7. Remove the left-hand and right-hand NUTS of the FILM REJECTER ASSEMBLY.

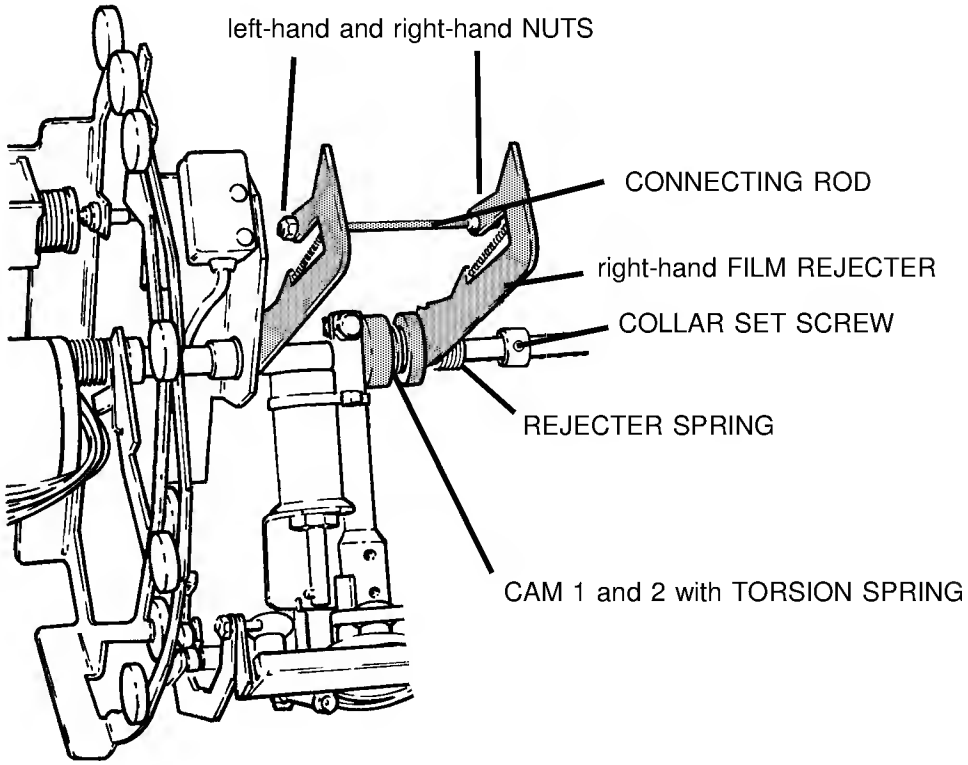

figure 4

8. Loosen the COLLAR SET SCREW.

9. Slide the COLLAR off the SHAFT.

10. Slide the REJECTER SPRING off the SHAFT and discard it.

11. Slide the right-hand FILM REJECTER off the SHAFT.

12. Slide CAM 1 and 2 with the TORSION SPRING off the SHAFT and discard them.

13. Discard the CONNECTING ROD.

14. Lubricate the new CLUTCH ASSEMBLY.

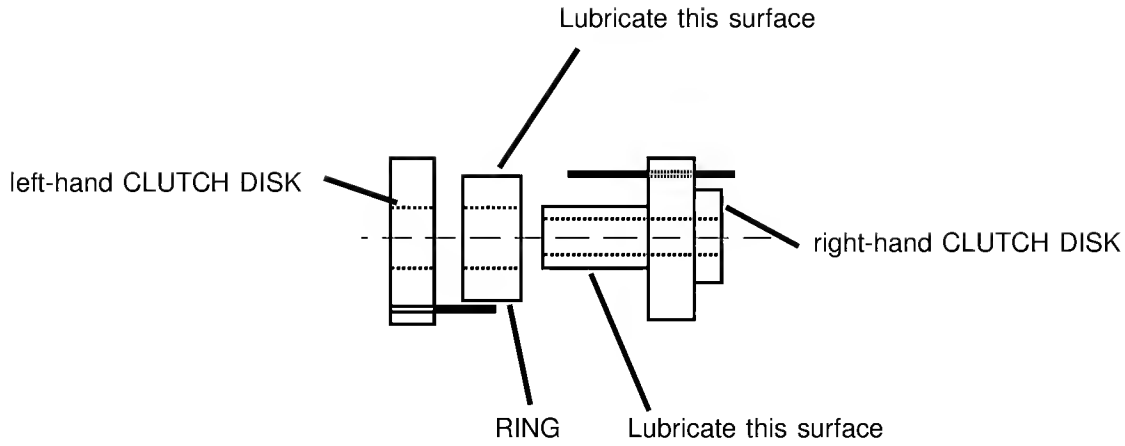

figure 5

15. Ensure that the CLUTCH SPRING 9225780 is mounted as shown.

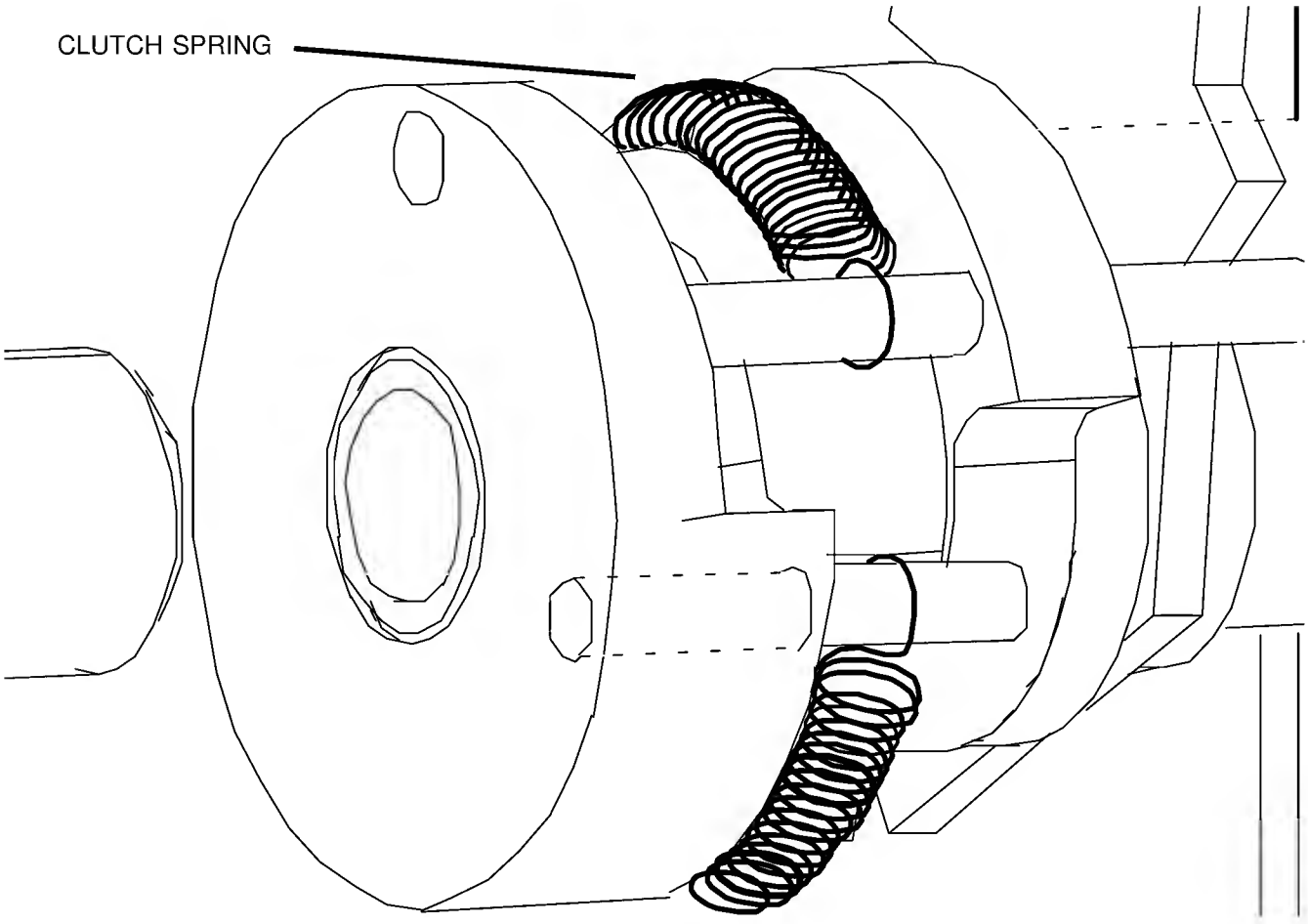

figure 6

16. Insert the new CONNECTING ROD with the short thread into the left-hand FILM REJECTER. Fix it with a LOCK-NUT

17. Slide in the new CLUTCH ASSEMBLY onto the FILM POCKET SHAFT and engage it with the FILM POCKET ARM.

18. Slide in the right-hand FILM REJECTER. Ensure that the long PIN of the right-hand CLUTCH DISK is in front of the FILM REJECTER. Engage the FILM REJECTER with the CONNECTING ROD. Tighten the ROD with 1 LOCK-NUT. Mount the additional HEX-NUT from the KIT onto the LOCK-NUT. The HEX-NUT is used as a SPACER.

19. Mount SPRING_HOOK_1 to the right of the HEX-NUT and secure it with the LOCK-NUT. Do not fasten the LOCK-NUT at this time.

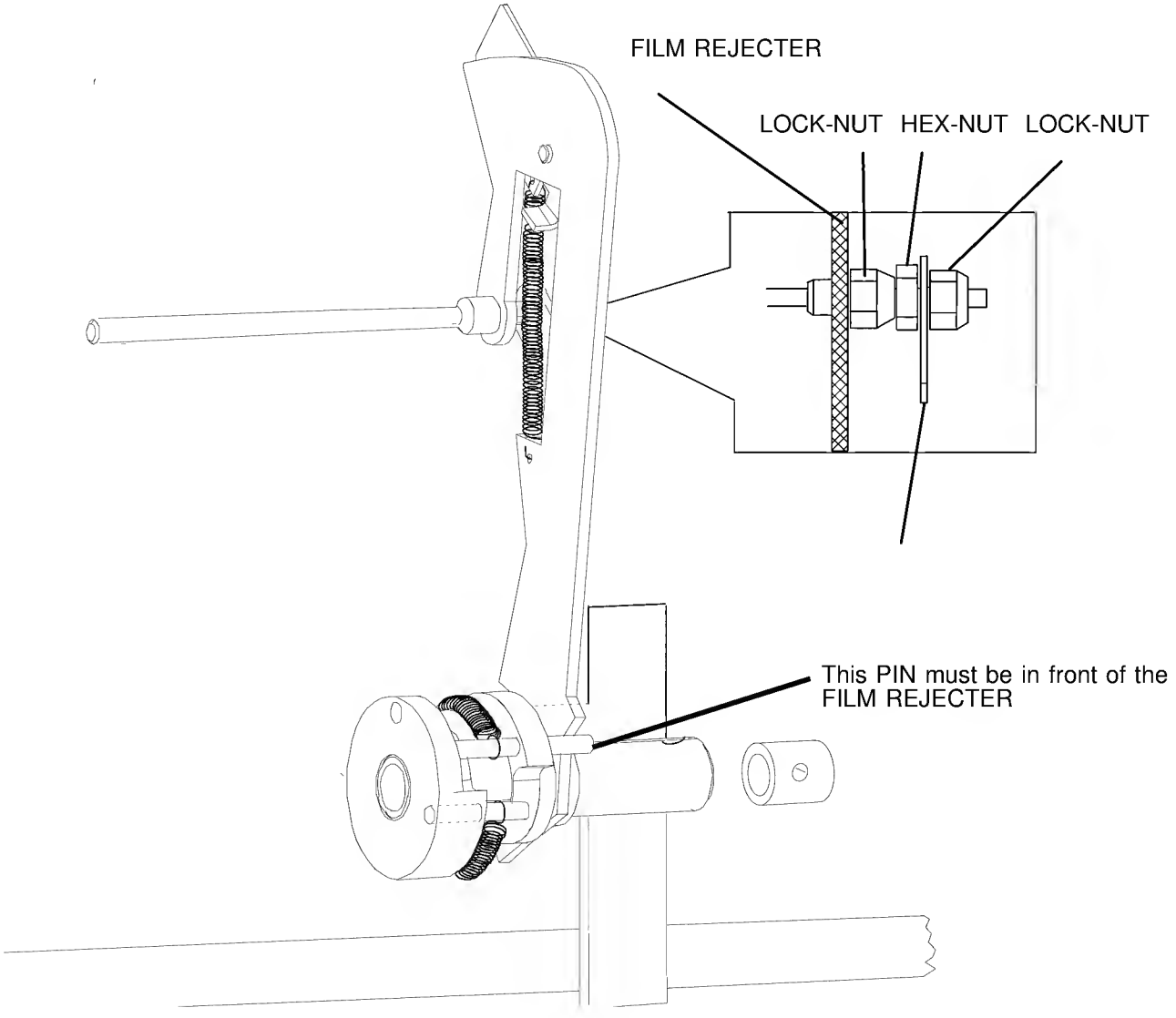

figure 7

20. Slide in the COLLAR and press it with little force against the right-hand FILM REJECTER. Ensure that FILM POCKET ARM, new CLUTCH ASSEMBLY and right-hand FILM REJECTER are engaged properly. Tighten the COLLAR SET SCREW.

21. Mount the right-hand FILM GUIDE.

22. Slide the TIMING DISKS onto the FILM POCKET SHAFT.

NOTE

Do not mix up the left-hand and the right-hand TIMING DISK

23. Mount PCB A5. Ensure that both TIMING DISKS are correctly within the 3 PHOTO SENSORS.

24. Mount SPRING_HOOK_2 to PCB A5. Use SCREW 4282781 from the KIT.

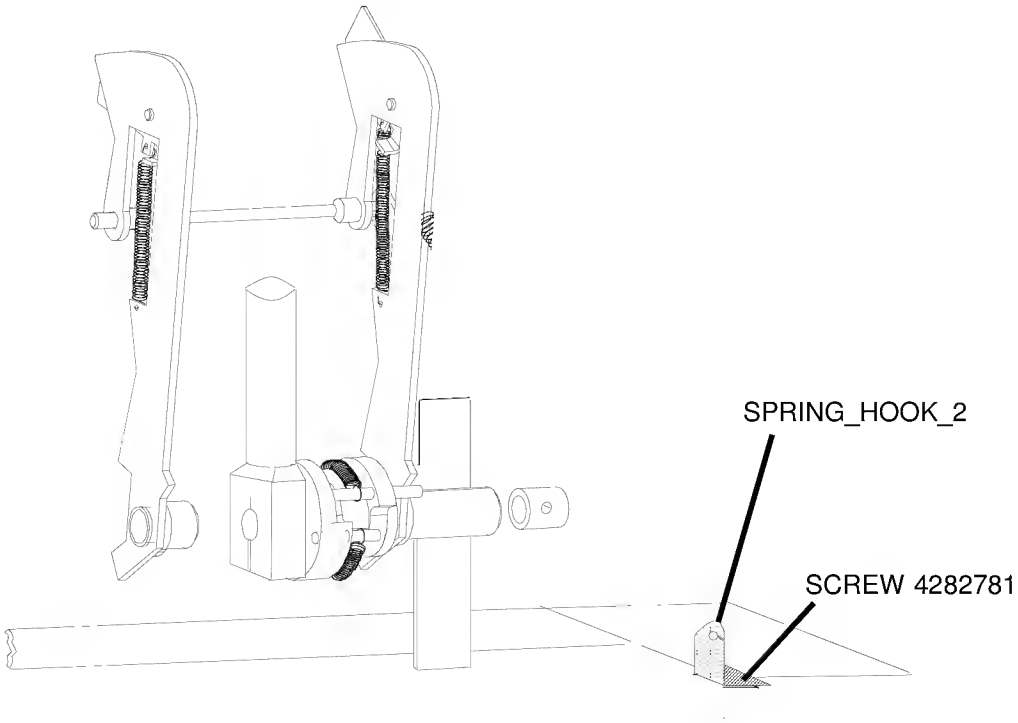

figure 8

25. Install the DETENT and the DETENT ASSEMBLY.

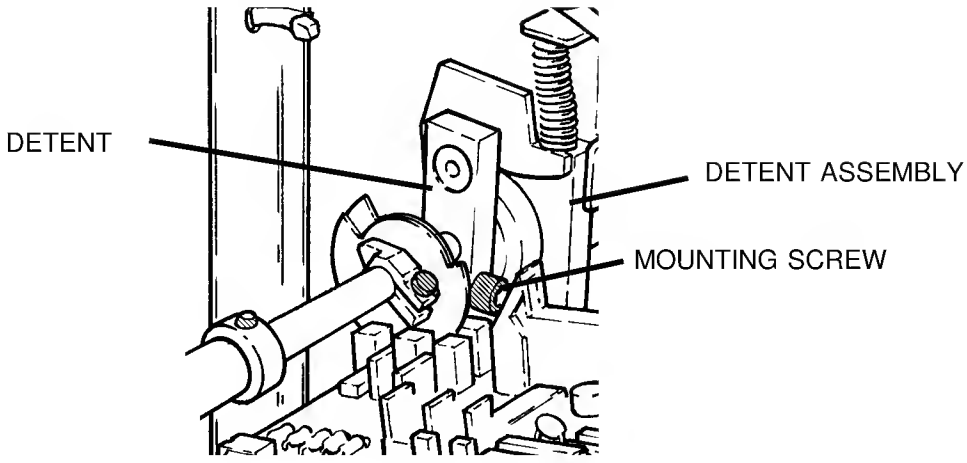

figure 9

26. Rotate the FILM POCKET ARM into its fully upright position.

27. Rotate the DETENT into its fully upright position and ensure that it is engaged properly. Fasten its MOUNTING SCREW. See the drawing on the previous page.

28. Rotate the FILM POCKET ARM fully down. Engage the REJECTER SPRING between SPRING_HOOK_1 and SPRING_HOOK_2. Fasten the LOCK-NUT of SPRING_HOOK_1.

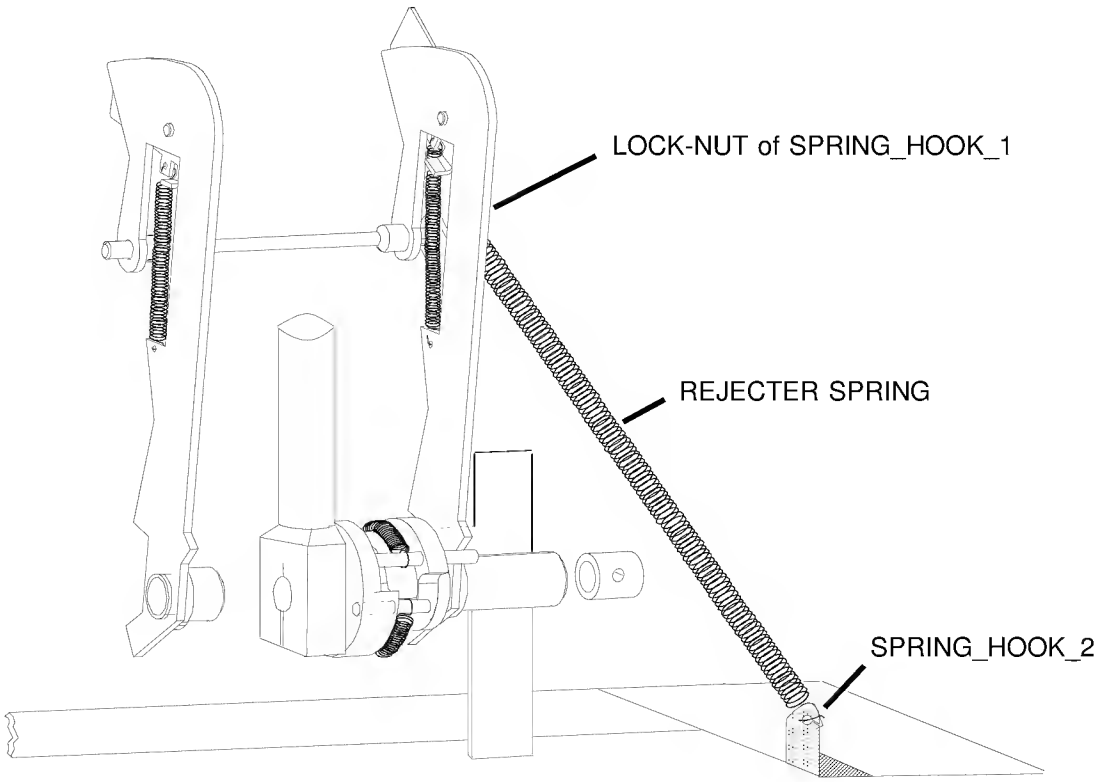

figure 10

29. Manually rotate the FILM POCKET ARM in and out a few times and check that it does not catch anywhere.

30. The installation of the new CLUTCH ASSEMBLY is now done. Do the adjustment procedure detailed in the next chapter.

FILM POCKET ADJUSTMENT

Special tools:

DENTIST MIRROR TL 2753
BLOWPIPE POSITIONER MAGAZINE TL-4582

1. Take out all MAGAZINES from the XML300.

2. Empty one MAGAZINE in the dark-room.

3. Take off the LID from the empty MAGAZINE.

4. Draw a reference line 3 mm away from the leading edge of a film.

5. Put this film into the empty MAGAZINE.

6. Make sure that the film is at the MAGAZINE WALL.

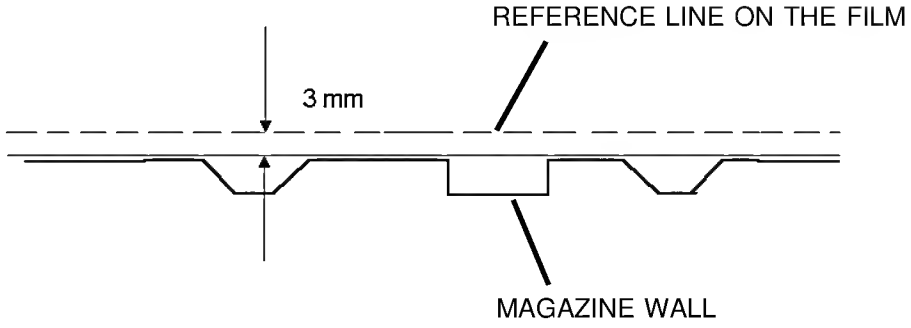

figure 11

7. Insert the prepared MAGAZINE into position 3.

8. Switch on the XML 300.

11. Pull the INTERLOCK OVERRIDE.

12. Connect the LAP TOP COMPUTER to the XML300 and start the SERVICE SOFTWARE.

13. Move the FILM POCKET to level 3.

Start the SERVICE PROGRAM
Select SERVICE MODE from the GLOBAL MENU . . . . . press ENTER
ENTER SERVICE MODE MESSAGE is displayed . . . . . press ENTER
UNIT DATA are displayed . . . . . press ENTER
Select COMPONENT TEST from the MAIN MENU . . . . . press ENTER
Select MAGAZINE MOTORS . . . . . press ENTER

Select STEPPER MOTOR FILM POCKET M10. . . . . press ENTER

Select MOVE TO LEVELS/HOME POSITION . . . . . press ENTER

Select MOVE TO MAGAZINE 3

14. Manually rotate the FILM POCKET SUCKER BAR ARM to its vertical position and push it forward until there is no clearance.

15. If the DETENT is not fully engaged, loosen its MOUNTING SCREW and move the DETENT ARM forward or backward as required. Fasten the DETENT MOUNTING SCREW.

The BALL BEARING must be fully engaged in the DETENT

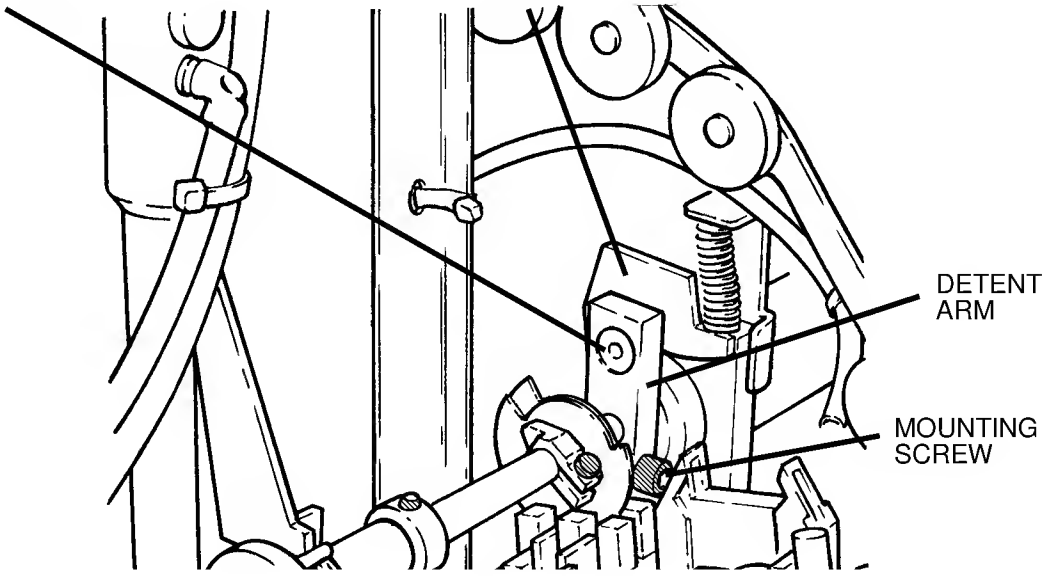

figure 12

16. Start the SENSOR TEST.

Press BACKSPACE 3 times to go back to the screen COMPONENT TEST

Select SENSORS . . . . . press ENTER

Select SENSOR TEST WITH SOUND . . . . . press ENTER

17. Rotate the LEFT HAND TIMING DISK in the direction of the arrow until the SENSOR B56/M_PU_EF is interrupted. This is indicated by a Beep from the SENSOR TEST.

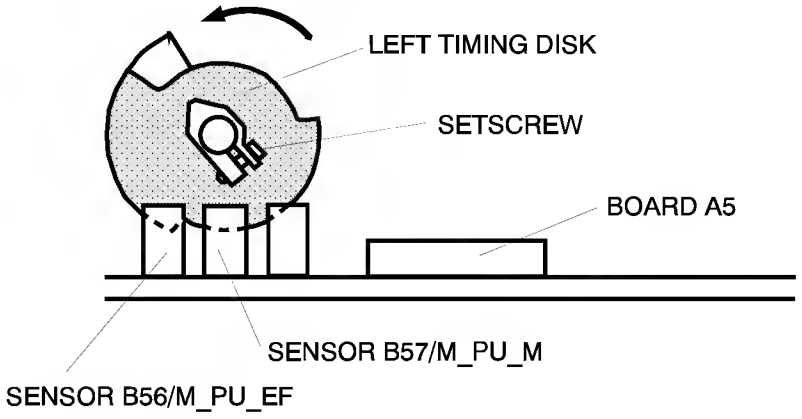

figure 13

18. Tighten the SET SCREW of the LEFT HAND TIMING DISK..

19. Up to SN 1421 manually rotate the SUCKER BAR ARM fully down beyond the vertical position until there is no clearance.

From SN 1422 manually rotate the SUCKER BAR ARM fully down, until the BALL BEARING is fully engaged in the second DETEND.

20. Rotate the right hand TIMING DISK in the direction of the arrow until SENSOR B58/M_PU_ER is interrupted. This is indicated by a BEEP from the SENSOR TEST.

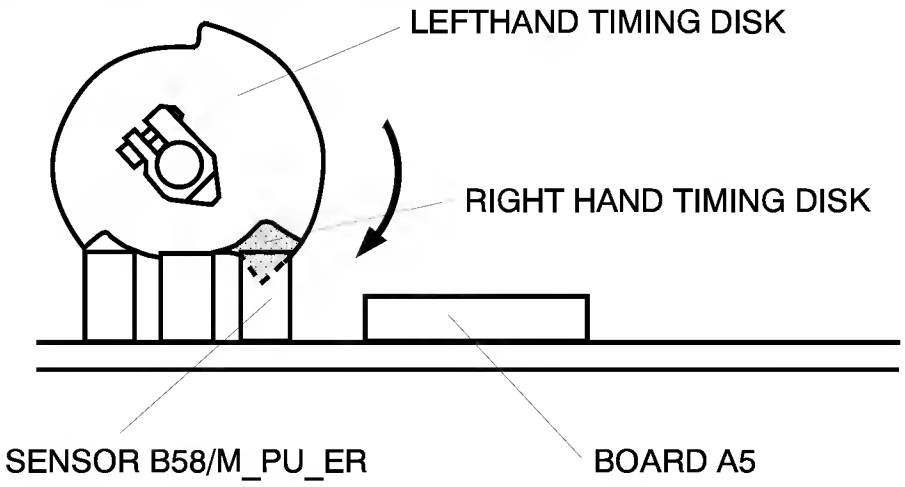

figure 14

21. Tighten the SET SCREW of the RIGHT HAND TIMING DISK.

22. Check that the FILM POCKET SUCKER BAR reaches the FRONT POSITION without bouncing.

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select MAGAZINE MOTORS . . . . . press ENTER

Select FILM PICK UP MAGAZINE M15 . . . . . press ENTER

Select BACKWARD

Select FORWARD

23. If the BALL BEARING is not fully engaged in the DETENT or if the FILM POCKET SUCKER BAR does not stop without bouncing, start the SENSOR TEST and proceed with step 17 else proceed with step 24.

24. Check that the FILM POCKET SUCKER BAR reaches the REAR POSITION without bouncing. If the FILM POCKET SUCKER BAR does not stop without bouncing, start the SENSOR TEST and proceed with step 19, else proceed with step 25.

Select FORWARD

Select BACKWARD

25. The next steps describe the adjustment of the MAGAZINE SUCKERS and of the FILM POCKET BLOW PIPES.

26. Check that the CABLE PROTECTING BRACKET AT SENSOR B61 FILM AT SUCKER BAR is not bent. Otherwise the BRACKET will ride on the MAGAZINE WALL and the SUCKERS do not reach the FILMS in the MAGAZINE.

27. Rotate the FILM POCKET SUCKER BAR to is fully upright position.

Select FORWARD

28. Move the FILM POCKET to the FILM in the MAGAZINE with the FILM POCKET SUCKER BAR tilted.

Press BACKSPACE twice to go back to the SCREEN COMPONENT TEST.

Select SOLENOIDS . . . . . *press ENTER*

Select TILTING MAGAZINE SUCKER BAR Y14 . . . . . *press ENTER*

Press BACKSPACE twice to go back to the SCREEN COMPONENT TEST.

Select MAGAZINE MOTORS . . . . . *press ENTER.*

Select STEPPER MOTOR FILM POCKET M10 . . . . . *press ENTER.*

Select MOVE TO A SPECIAL POSITION . . . . . *press ENTER.*

Select POCKET TO FILM (MAG)

NOTE

Do not energise the SOLENOID Y14 for too long. It will become very hot.

29. Check that all SUCKERS are parallel to the FILM.

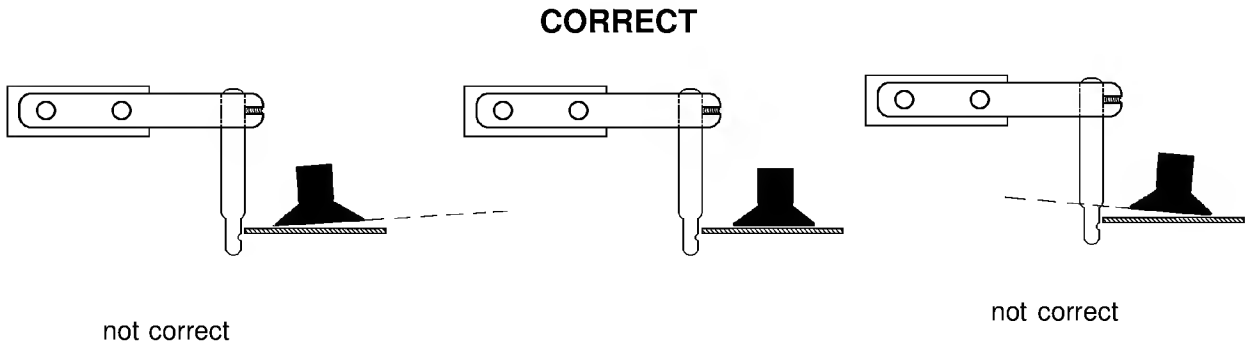

figure 15

30. If the SUCKERS are not plane on the FILM proceed with step 31, else proceed with step 32.

31. Loosen the 2 MOUNTING SCREWS of the TILTING MAGAZINE SUCKER BAR SOLENOID Y14. Move the SOLENOID up or down as required and tighten the MOUNTING SCREWS.

NOTE

The SOLENOID Y14 is still energised.

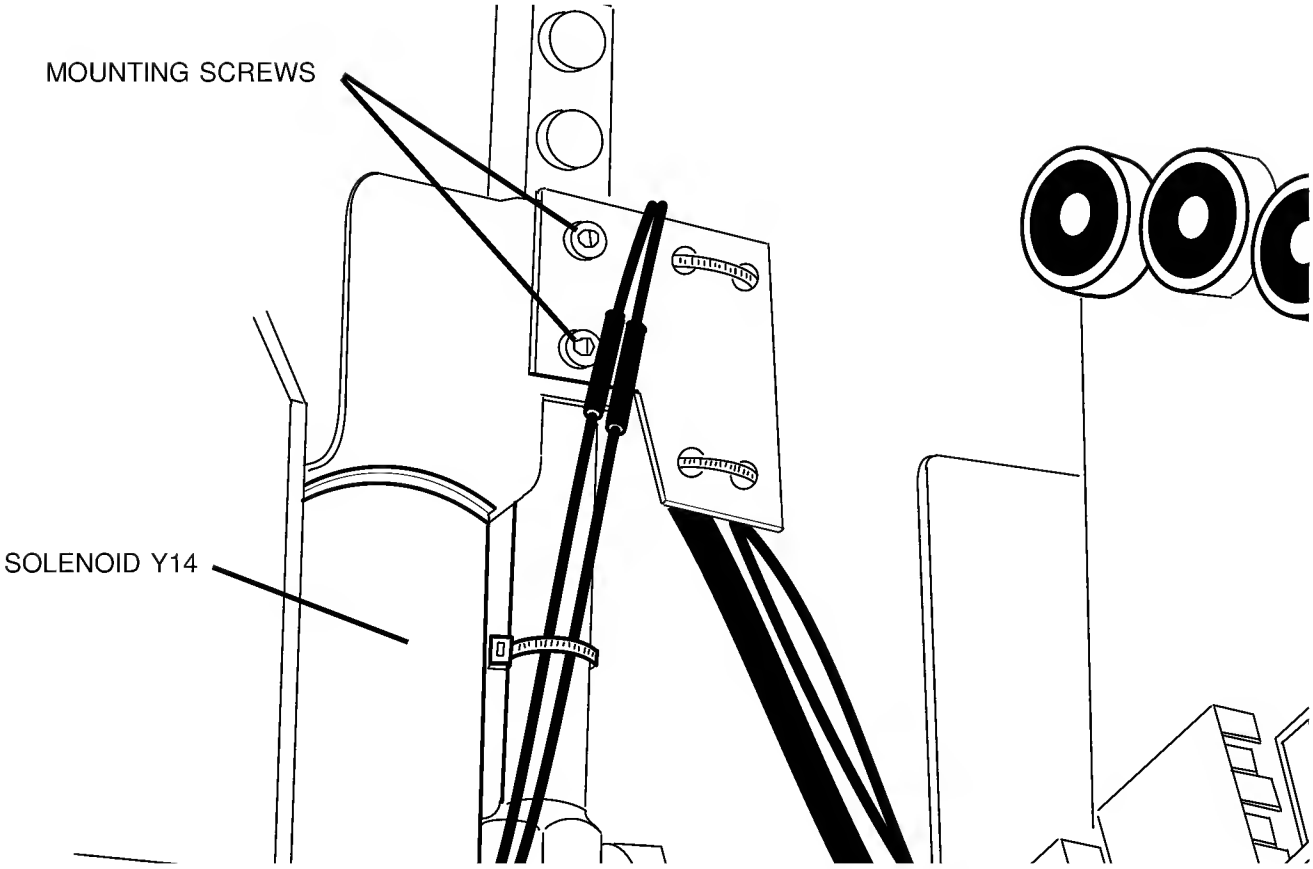

figure 16

32. Check that the MAGAZINE SUCKERS are 3 mm ± 0.5 away from the leading edge of the film. Use the DENTIST MIRROR to observe the position of the FILM POCKET SUCKERS. Make sure that the FILM is touching the MAGAZINE WALL.

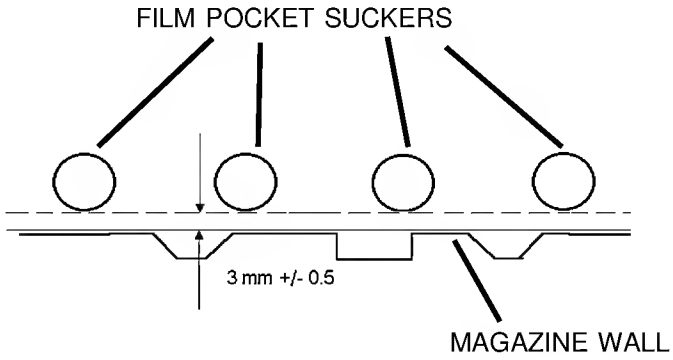

figure 17

33. If the distance is not correct, or if the MAGAZINE SUCKER BAR touches the MAGAZINE WALL proceed with step 34. Otherwise proceed with step 37.

34. Move the FILM POCKET up, so that it can be rotated out of the MAGAZINE.

Select MOVE OUT POSITION

35. Loosen SCREW 1 and rotate the SUCKER BAR in or out as required. **Tighten SCREW 1.**

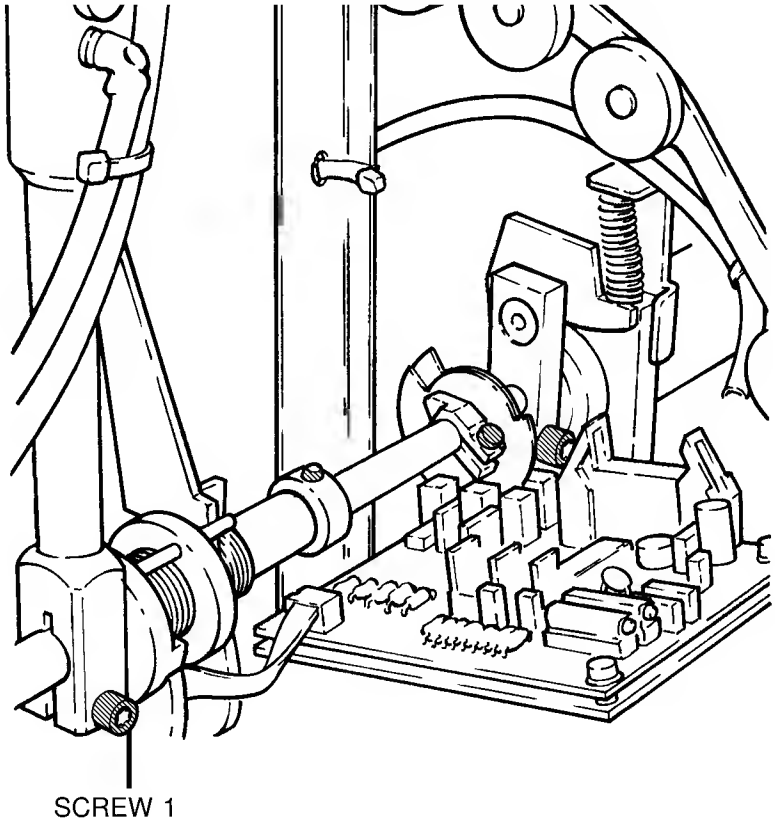

figure 18

36. Press Backspace until you reach the screen COMPONENT TEST.

37. Switch off the SOLENOID TILTING MAGAZINE SUCKER BAR Y14 to avoid overheating and let it cool down if necessary .

Press 3 times BACKSPACE

Select SOLENOIDS . . . . . press ENTER

Select TILTING MAGAZINE SUCKER BAR Y14 . . . . . press ENTER

Select SOLENOID OFF

Press BACKSPACE twice to go back to the screen COMPONENT TEST

38. Ensure that the FILM POCKET is at MAGAZINE LEVEL 3.

Select MAGAZINE MOTORS . . . . . press ENTER

Select STEPPER MOTOR FILM POCKET M10. . . . . press ENTER

Select MOVE TO LEVELS/HOME POSITION . . . . . press ENTER

Select MOVE TO MAGAZINE 3

39. Check that the BLOW PIPES are not touching the side of the MAGAZINE RECESSES. The BLOW PIPES must not be in the shaded area.

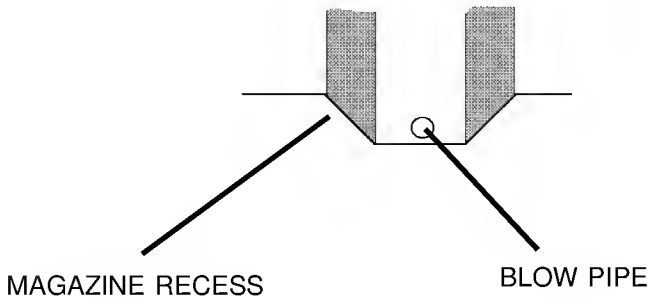

figure 19

40. If they are too far to the left or to the right, loosen SCREWS 1+2 and carefully move the SUCKER BAR ARM in the desired direction. Make sure the SUCKER BAR does not interfere with the DOUBLE FILM DETECTOR.

NOTE

Ensure that the position of the MAGAZINE SUCKER BAR in relation to the 3 mm reference line is not changed (see step 32).

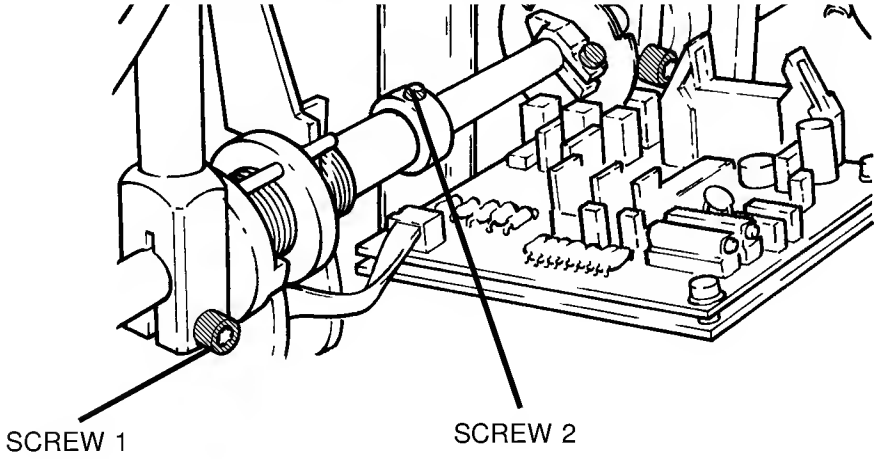

figure 20

41. Tighten SCREW 1

Note

It is most important that SCREW 1 is tightened. If it is not tight, the relationship between the 2 FILM POCKET TIMING DISKS and the MAGAZINE SUCKER BAR will be lost. It is then impossible to pick up a film from the MAGAZINE.

42. Move the COLLAR with SCREW 2 to the left as far as possible and tighten SCREW 2.

43. Check that the BLOWPIPES are correct in the MAGAZINE RECESSES. The BLOWPIPES must not be in the shaded areas. They have to be between the centerline of the recess and the MAGAZINE WALL. They must not touch the MAGAZINE WALLS. If this distance is not correct, loosen the LENGTH ADJUSTMENT SCREWS of the BLOWPIPES and shift them forward or backward. Tighten the screws.

NOTE

Do not tighten the LENGTH ADJUSTMENT SCREWS too much, otherwise they dig into the BLOWPIPES and a fine adjustment is no longer possible.

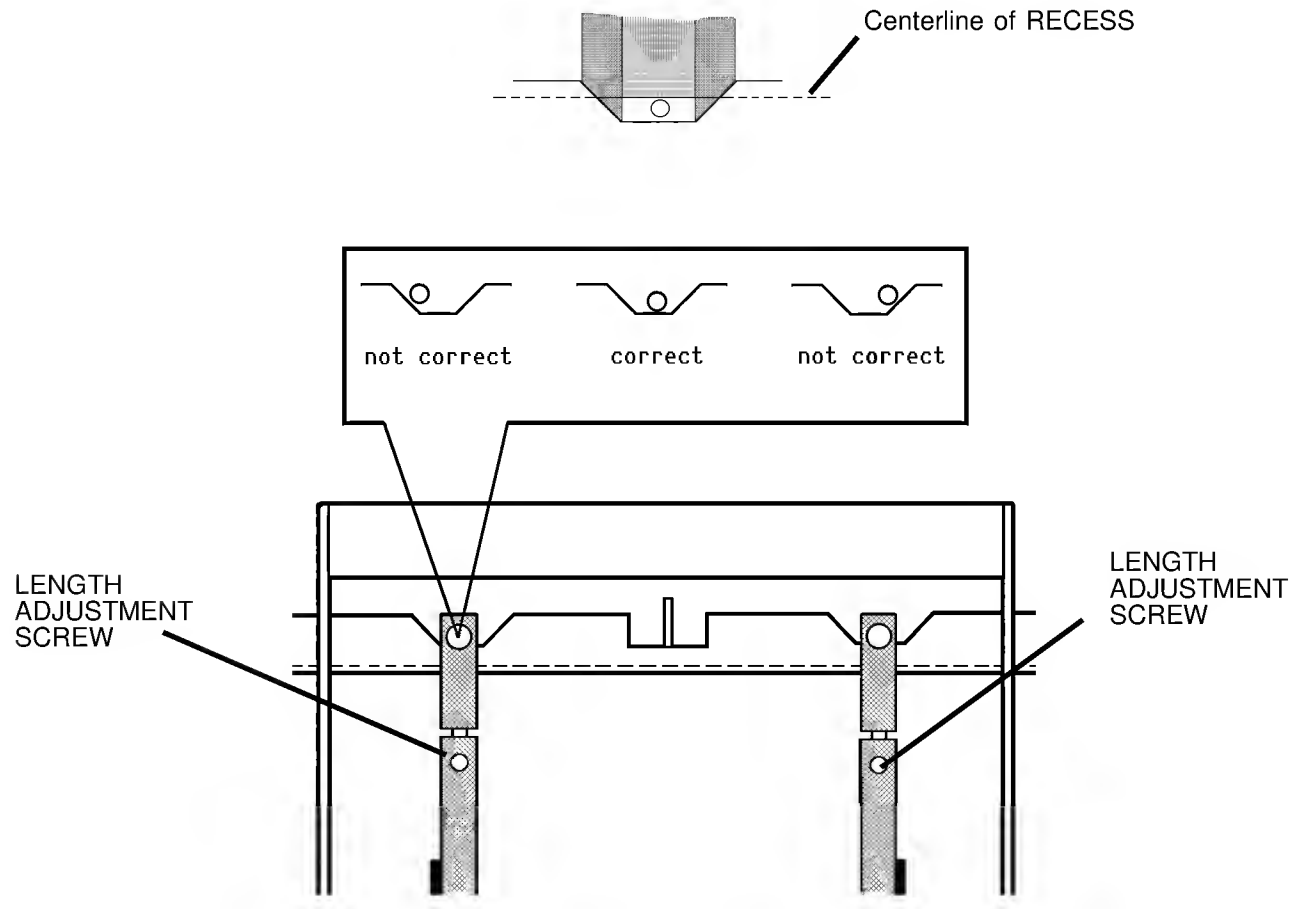

figure 21

44. Manually rotate the FILM POCKET SUCKER BAR out of the MAGAZINE.

45. Test the position of the BLOW PIPE HOLES (SLITS in the old version) in relation to the FILM POCKET SUCKERS. To do this the COMPRESSOR must be switched on, SOLENOID VALVE Y12 must be energised and SOLENOID TILTING MAGAZINE SUCKER BAR Y14 must be switched on.

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select MAGAZINE MOTORS . . . . . *press ENTER*

Select COMPRESSOR M16 . . . . . *press ENTER*

Select MOTOR ON

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select SOLENOID VALVES . . . . . *press ENTER*

Select MAGAZINE SUCKING Y12 . . . . . *press ENTER*

Select SOL: VALVE ON . . . . . *press ENTER*

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select SOLENOIDS . . . . . *press ENTER*

Select TILTING MAGAZINE SUCKER BAR Y14 . . . . . *press ENTER*

Select SOLENOID ON

NOTE

Do not leave on the SOLENOID Y14 for too long. It will become very hot.

46. Place the BLOWPIPE POSITIONER GAUGE TL 4582 onto the FILM POCKET SUCKERS.

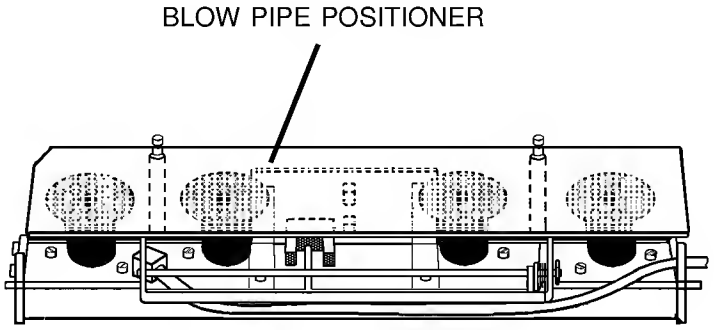

figure 22

47. Check that the 0.5mm HOLE (Slit before MOD 20) of the BLOWPIPES (Parts of MOD 20) is just above the BLOWPIPE POSITIONER. See the drawing on the next page.

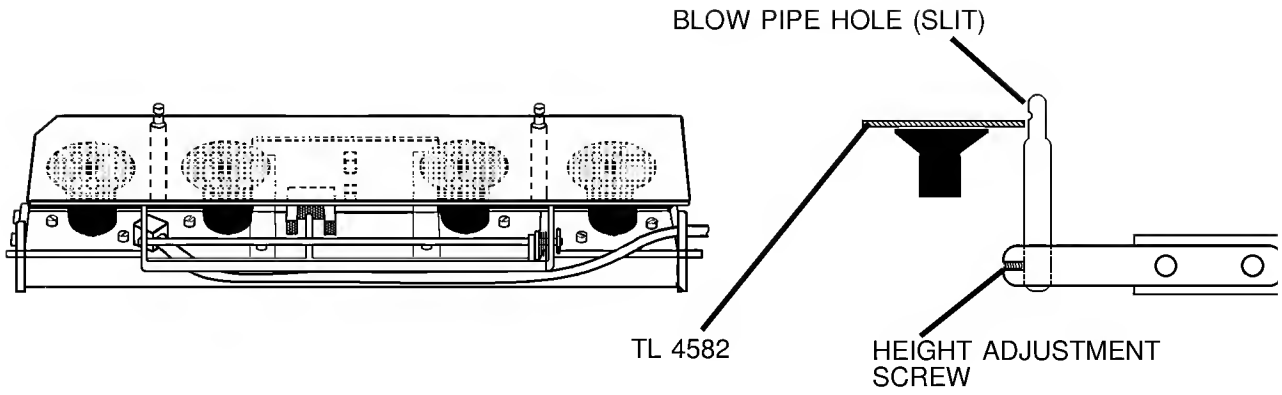

figure 23

48. If the position of the HOLE is not correct, loosen the HEIGHT ADJUSTMENT SCREWS of the BLOWPIPES and move the BLOWPIPES up or down as required. Then fasten the SCREWS.

NOTE

The position of the hole in the BLOWPIPES is important to separate the films in the MAGAZINES.

49. Switch off the SOLENOID Y14.

Select SOLENOID OFF

50. Remove the BLOW PIPE POSITIONER TOOL from the SUCKERS. The TOOL can only be taken off, after SOLENOID VALVE Y12 is switched off and air is blown into the SUCKERS.

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select SOLENOID VALVES . . . . . *press ENTER*

Select MAGAZINE SUCKING Y12 . . . . . *press ENTER*

Select SOL. VALVE OFF

Press BACKSPACE

Select MAGAZINE BLOW SUCKER Y10 . . . . . *press ENTER*

Select SOL. VALVE ON

Select SOL. VALVE OFF

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select MAGAZINE MOTORS . . . . . *press ENTER*

Select COMPRESSOR M16 . . . . . *Press ENTER*

Select MOTOR OFF

51. To do the adjustment of the SENSOR B61, place the BLOW PIPE POSITION TOOL TL-4582 onto the MAGAZINE SUCKERS and start the SENSOR TEST.

Press BACKSPACE twice to come back to the screen COMPONENT TEST

Select SENSORS . . . . . *press ENTER*

Select SENSOR TEST WITH SOUND . . . . . *press ENTER*

52. Carefully press down the tool onto the SUCKERS. After 0.2 - 0.5 mm, SENSOR B61 should be actuated.

53. If the SENSOR is not actuated, carefully bend the ACTUATOR BRACKET.

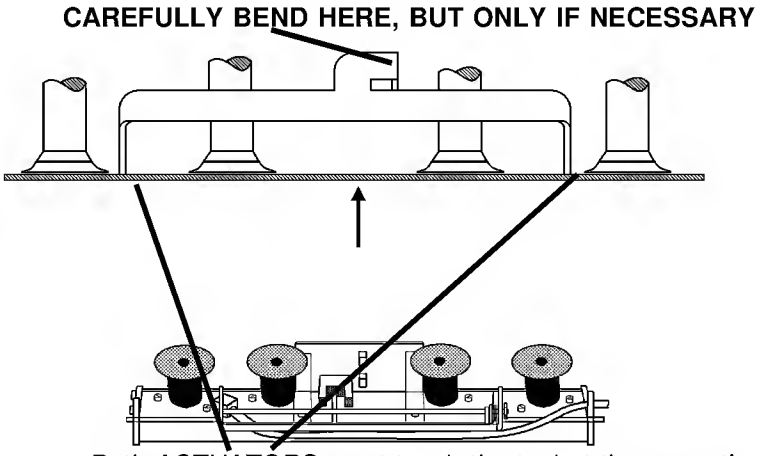

figure 24

54. Exit the SENSOR TEST.

Press BACKSPACE twice to come back to the screen COMPONENT TEST

55. Insert an empty MAGAZINE into position 3.

56. Check that the BLOW PIPES have the correct distance to the MAGAZINE.

57. Check that there is a gap of 0 to 1mm between the BLOW PIPES and the MAGAZINE WALL.

Select MAGAZINE MOTORS . . . . . press ENTER
Select STEPPER MOTOR FILM POCKET M10. . . . . press ENTER
Select MOVE TO LEVELS/HOME POSITION . . . . . press ENTER
Select Move to MAGAZINE 3 . . . . . START
Press BACKSPACE twice to come back to screen TEST MAGAZINE MOTORS
Select FILM PICK UP MAGAZINE M15 . . . . . press ENTER
Select FORWARD

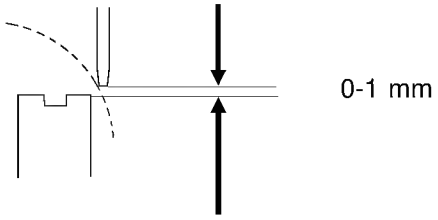

figure 25

58. If this distance is not correct, proceed with step 59 else proceed with step 63.

59. Rotate out the FILM POCKET SUCKER BAR.

Select BACKWARD

60. Loosen the MOUNTING SCREWS of the MAGAZINE LEVEL BRACKET and move it up or down as required. Then fasten the MOUNTING SCREWS.

NOTE

The gap has to be correct. The distances given in the MAGAZINE LEVEL ADJUSTMENT are just a starting point.

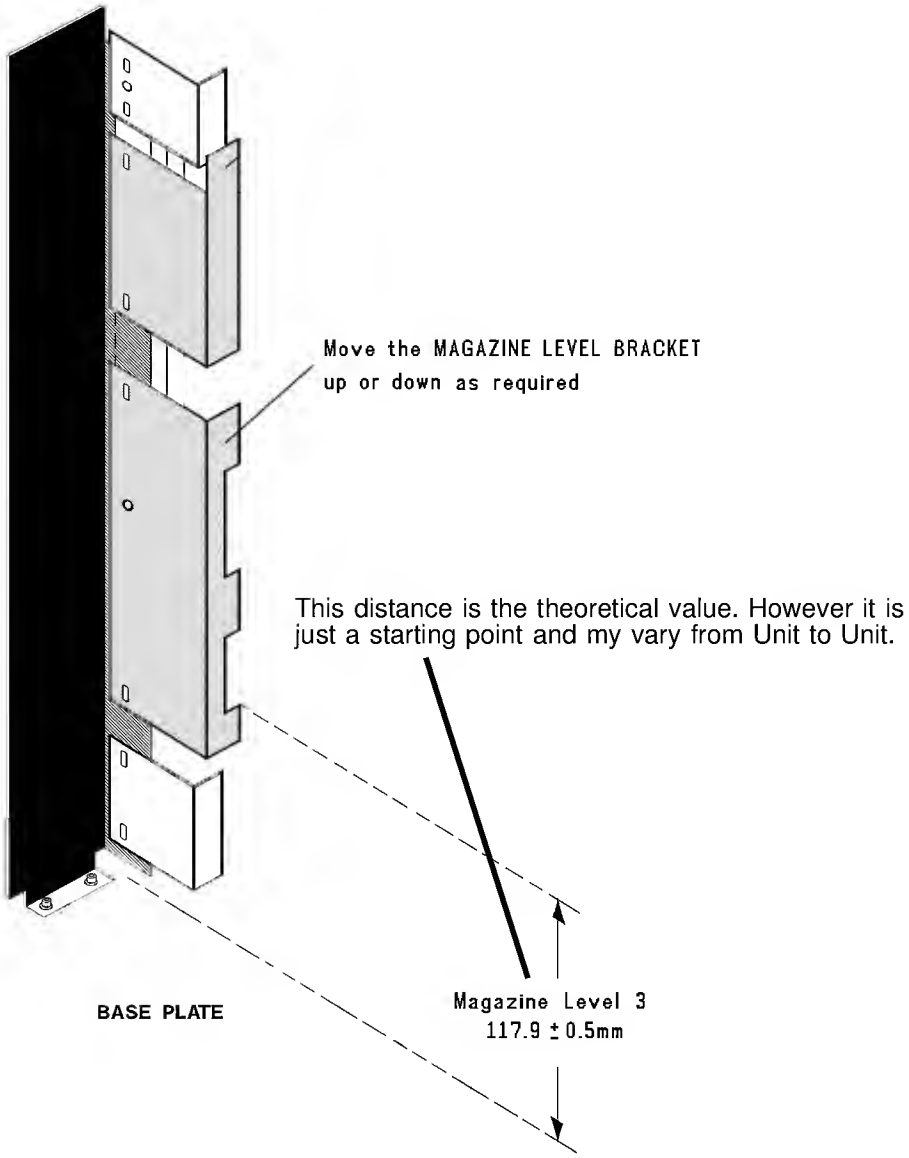
Move the MAGAZINE LEVEL BRACKET
up or down as required
This distance is the theoretical value. However it is just a starting point and my vary from Unit to Unit.
BASE PLATE
Magazine Level 3
117.9 ± 0.5mm

figure 26

61. Do a SCAN RUN.

Press 3 times BACKSPACE

Select LEAVE COMPONENT TEST . . . . . *press ENTER*

Select CHANGE ML300 DATA . . . . . *press ENTER*

Select CHANGE PARAMETER . . . . . *press ENTER*

Select SCAN RUN. . . . . *press ENTER*

Select NEARLY EMPTY . . . . . *press ENTER*

Select STORE PARAMETERS . . . . . *press ENTER*

Select RETURN TO MAIN MENU. . . . . *press ENTER*

Select COMPONENT TEST . . . . . *press ENTER*

Select MAGAZINE MOTORS . . . . . *press ENTER*

62. Proceed with step 65.

63. Rotate out the FILM POCKET SUCKER BAR.

Select BACKWARD . . . . . *press ENTER*

64. Press Backspace to go back to the screen TEST MAGAZINE MOTORS.

65. Insert the MAGAZINE into position 1.

66. Check that the BLOWPIPES have the correct distance of 0-1 mm to the wall of MAGAZINE 1.

Select STEPPER MOTOR FILM POCKET M10. . . . . *press ENTER*

Select MOVE TO LEVELS/HOME POSITION . . . . . *press ENTER*

Select Move to MAGAZINE 1 . . . . . *START*

Press BACKSPACE twice to come back to screen TEST MAGAZINE MOTORS

Select FILM PICK UP MAGAZINE M15 . . . . . *press ENTER*

Select FORWARD

67. If the distance is not correct, go back to step 59 and alter the MAGAZINE LEVEL ADJUSTMENT.

NOTE

Find a compromise between MAGAZINE LEVEL 1 and 3.

68. Rotate out the FILM POCKET SUCKER BAR.

Select BACKWARD

69. Exit the SERVICE PROGRAM.

Press 3 times BACKSPACE

Select LEAVE COMPONENT TEST . . . . . *press ENTER*

Select QUIT ML300 SERVICE MODE . . . . . *press ENTER*

Select Quit the program. . . . . *press ENTER*

70. Put the FILM CHUTE in its correct position and fix it with all 6 SCREWS.

71. Run several cycles with X-OMAT CASSETTES and with VIDEO-FILM HOLDERS (if available).

72. Make sure that the MAGAZINE BLOWPIPES do not interfere with the CASSETTES.

NOTE

This adjustment is most important when OPERATING SOFTWARE VERSION 3.0 AND VIDEO FILM HOLDERS are used, because in this combination the parameter "LOWER FILM POCKET" is ignored. If it is not correct, the FILM may float out of the VHF.

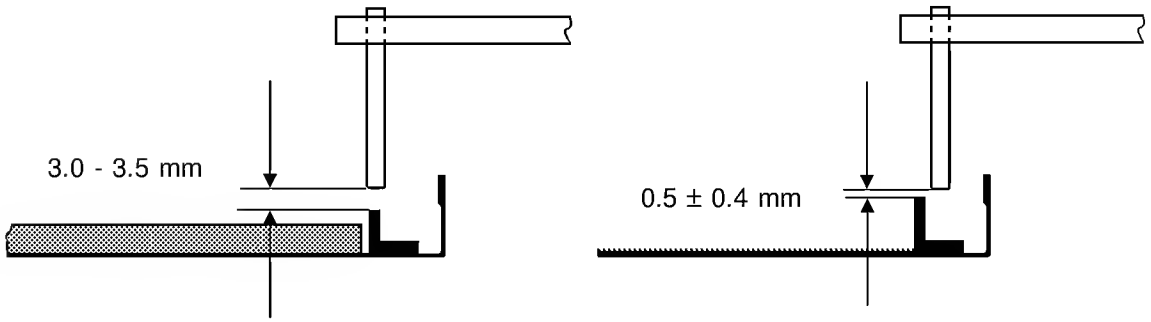

figure 27

73. If the distance is not as shown in the figure on the previous page, loosen the MOUNTING SCREWS of the CASSETTE LEVEL BRACKET and move it up or down as required. Then fasten the MOUNTING SCREWS. See the drawing on the next page.

74. SENSOR B32/M_PO_PL MAGAZINE LEVEL must be actuated before SENSOR B31/M_PO_ES END SWITCH.

Disconnect CONNECTOR A4X17. This allows to move the FILM POCKET manually up and down.

Start the SERVICE PROGRAM

Select SERVICE MODE from the GLOBAL MENU . . . . . press ENTER

ENTER SERVICE MODE MESSAGE is displayed . . . . . press ENTER

UNIT DATA are displayed . . . . . press ENTER

Select COMPONENT TEST from the MAIN MENU . . . . . press ENTER

Select SENSORS . . . . . press ENTER

Select SENSOR TEST WITH SOUND . . . . . press ENTER

NOTE

If the CASSETTE LEVEL is too high the FILM POCKET SUCKER BAR ARM touches the CENTER ROLLER of the bottom TRANSPORT ROLLER in the CONVEYOR.

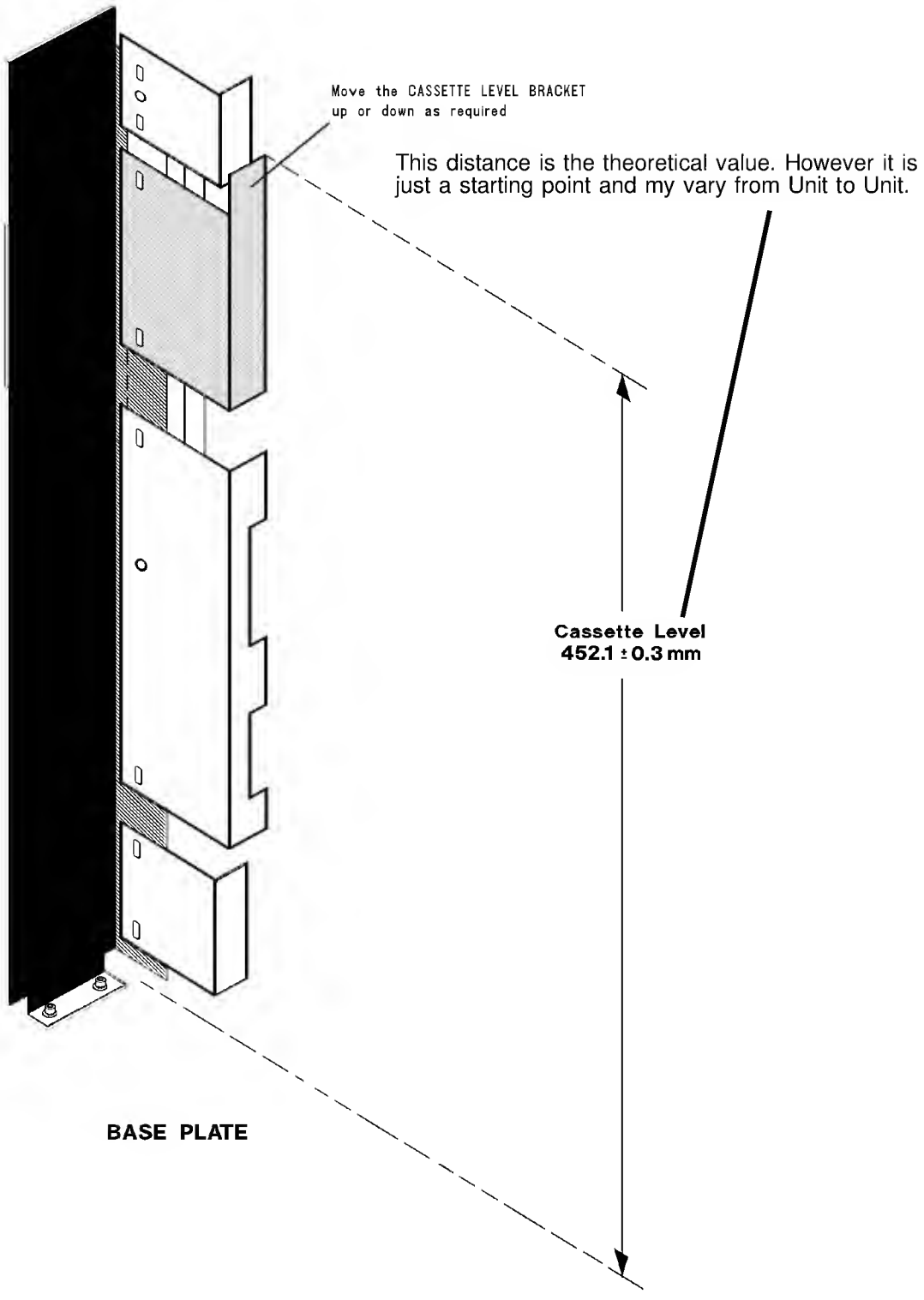
Move the CASSETTE LEVEL BRACKET
up or down as required
This distance is the theoretical value. However it is
just a starting point and my vary from Unit to Unit.
Cassette Level
452.1 ± 0.3 mm
BASE PLATE

figure 28

75. Connect CONNECTOR A4X17.

76. Do a SCAN RUN.

Press 3 times BACKSPACE

Select LEAVE COMPONENT TEST . . . . . press ENTER

Select CHANGE ML300 DATA . . . . . press ENTER

Select CHANGE PARAMETER . . . . . press ENTER

Select SCAN RUN. . . . . press ENTER

Select NEARLY EMPTY . . . . . press ENTER

Select STORE PARAMETERS . . . . . press ENTER

Select RETURN TO MAIN MENU. . . . . press ENTER

Select COMPONENT TEST . . . . . press ENTER

Select MAGAZINE MOTORS . . . . . press ENTER

77. If Step 72 was not correct go back to step 70 else proceed with step 78.

78. Exit the SERVICE PROGRAM.

Press 3 times BACKSPACE

Select LEAVE COMPONENT TEST . . . . . press ENTER

Select QUIT ML300 SERVICE MODE . . . . . press ENTER

Select Quit the program. . . . . press ENTER

FINAL TEST

1. Circle No 34 on the MODIFICATION LABEL.

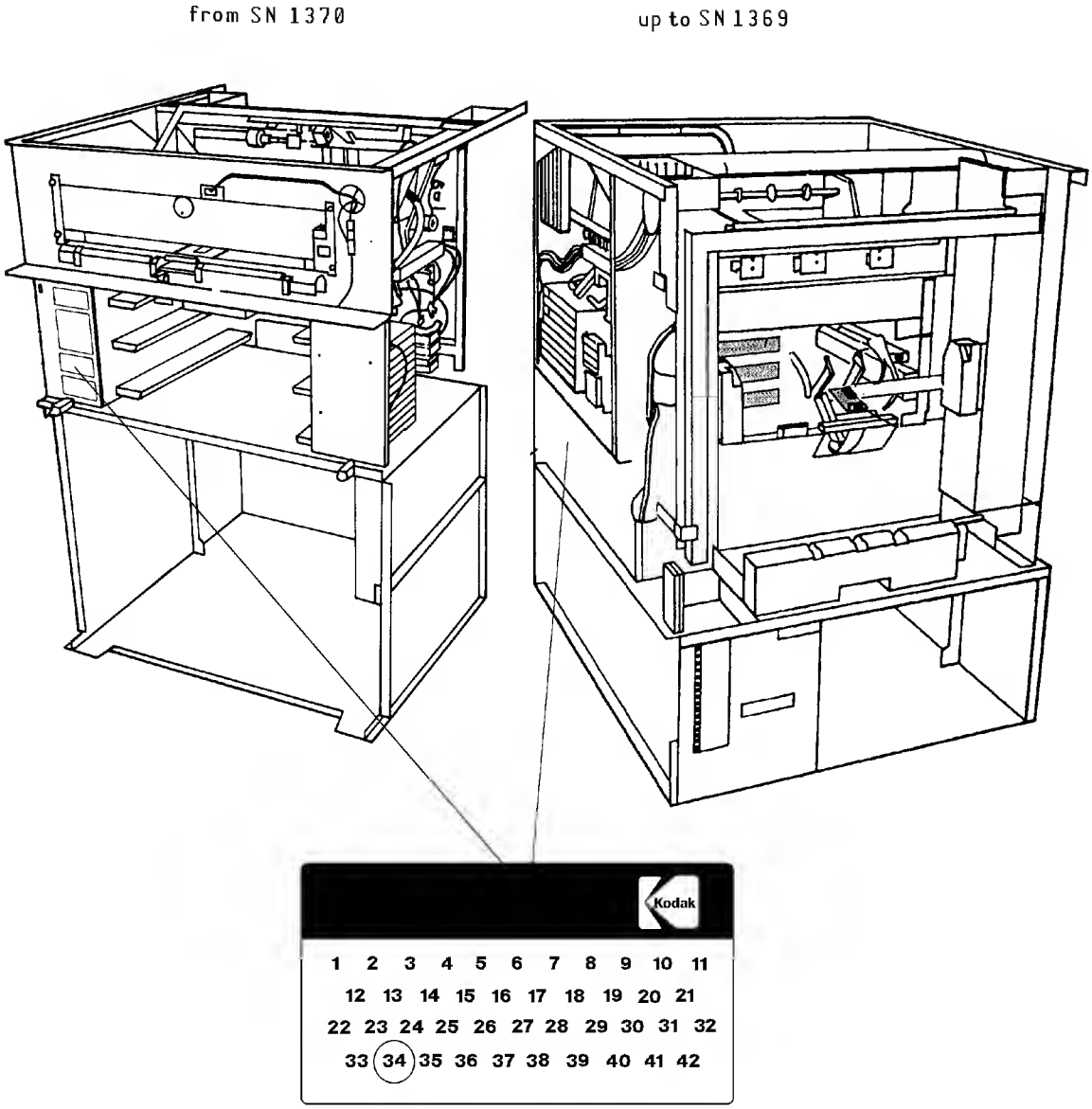

figure 29

2. Enable the CONTINUOS LOOP MODE.

   Move SWITCH S1-1 on PCB A1 to the ON (up) position.

   Select FUNC at the OPERATORS DISPLAY

   Select SYSTEM at the OPERATORS DISPLAY

   Select CONTIN at the OPERATORS DISPLAY

   Select CLEAR at the OPERATORS DISPLAY

3. Insert the MAGAZINES loaded with TEST FILMS.(use small and large film sizes)

4. Run approximately 30 cycles.

5. Watch the various movements of the FILM POCKET.

6. Reload the MAGAZINES.

7. Mount all PANELS.

8. Run a few additional cycles.